

used for fuel wood. At high altitudes near the timberline, the bushes of rhododendrons are the main source of fuel wood. In mid-hill belts, the trees are considered good fuel wood for their lasting heat, and the coal is useful to blacksmiths and goldsmiths. The wood of *R. arboreum* is soft, and is preferred for carving and making household utensils.

Rhododendrons can be protected in their natural habitat with people's participation. For instance, ecotourism can be beneficial to the locals and protect nature at the same time. A rhododendron conservation area could be established in

Milke and Jaljale areas of east Nepal. Some non-governmental organisations like Echo himal, Gurans Sanrakshan Samiti are already actively conserving the rhododendrons in east Nepal.

January 6, 2003 NARAYAN PRASAD MANANDHAR
Ka 3-16, Naya Baneshwar,
P.O. Box 3389,
Kathmandu,
Nepal.

REFERENCES

CHOPRA, R.N., I.C. CHOPRA, K.L. HANDA & L.D. KAPUR (1958): Chopra's Indigenous Drugs of India. U.N. Dhur & Sons Pvt. Ltd., Calcutta, India.
MANANDHAR, N.P. (1986): Ethnobotany of Jumla district, Nepal. *Int. J. Crude Drug Res.* 24(2): 81-89.

MANANDHAR, N.P. (2002): Plants and people of Nepal. Timber Press, Portland, Oregon, USA.
PUDASAINI, S.P. (1992): Environment Crisis-Integrated Action Required. *The Rising Nepal* (English daily newspaper), August 26.

30. *PASPALUM CONJUGATUM* BERG. (POACEAE), A NEW RECORD TO ANDHRA PRADESH, INDIA

The genus *Paspalum* L. is represented by c. 250 species (Cope 1982; Sreekumar and Nair 1991; Shukla 1996). Distributed in the warmer and drier parts of the world, the genus is reported to be represented by 14 species in India (Shukla 1996). During intensive exploration of the Eastern Ghats of Andhra Pradesh, the authors collected an interesting specimen of *Paspalum* in Chintapalli forest of Visakhapatnam district. On further examination, the specimen was identified as *Paspalum conjugatum* Berg. After a thorough perusal of literature, the species is being reported as a new distributional record for the State of Andhra Pradesh.

Paspalum conjugatum Berg. in Act. Helvet. Phys. Math. 7: 129, t.8. 1772; Bor, Grass. Bur. Cey. Ind. Pak. 336. 1960.

Perennial, stoloniferous, rooting at nodes; culms to 1.1 m, surface smooth; nodes glabrous. Leaf sheaths 6-20 x 0.6-1 cm, surface glabrous, ciliate along one margin, compressed, keeled. Ligule rounded, to 1 mm, membranous. Leaf blade 17-25 x 0.7-1 cm, linear-lanceolate, surface glabrous, apex acuminate, base narrow, ciliate, margin ciliate. Racemes 2, conjugate, 6-18 cm; rachis triquetrous, glabrous. Spikelets subsessile, solitary, alternate on the rachis, 1.8-2 x 1-1.5 mm, ovate or broadly elliptic, or orbicular acute, hairy, greenish-yellow. Lower glume absent. Upper glume ovate or orbicular, 1.5-1.9 x 1-1.3 mm, membranous, 2-nerved, long ciliate along the margins. Lower lemma barren, ovate or orbicular, and acute, 1.6-1.8 x 1 mm, membranous, 2-nerved. Upper lemma ovate or orbicular, 1.5-1.7 x 1 mm, crustaceous, 2-keeled. Palea ovate, 1.5 x 1 mm, crustaceous, 2-keeled. Stamens 3, anthers

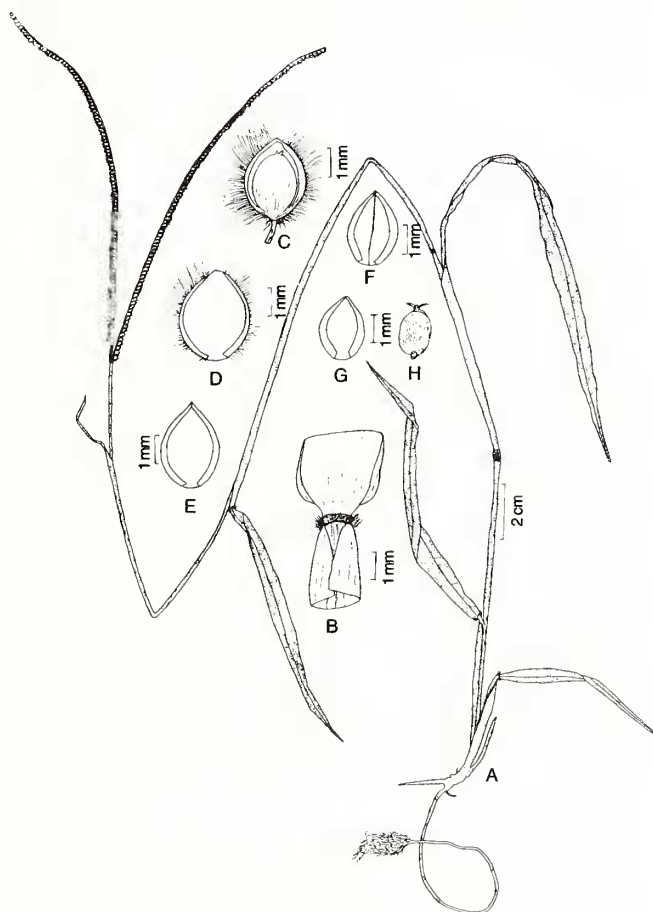


Fig. 1: *Paspalum conjugatum*
A. Habit; B. Ligule; C. Spikelet; D. Upper glume; E. Lower lemma;
F. Upper lemma; G. Palea; H. Grain

0.5 mm, deep yellow. Pistil 1 mm, stigmas white. Lodicules 0.3 mm. Grains elliptic-ovate.

Distribution

World: America, Africa and Asia (Bor 1960; Moulik 1997).

India: Peninsula, East India, Northeast India, Andaman and Nicobar Islands (Bor 1960; Karthikeyan *et al.* 1989; Moulik 1997).

Ecology: The taxon occasionally occurs in streams and moist localities of Chintapalli forest area (Visakhapatnam district).

Fl. & Fr.: July-November.

Voucher specimen: Chintapalli (Visakhapatnam district) BR & AMR 24576 (SKU)

ACKNOWLEDGEMENTS

A. Madhusudan Reddy is grateful to the Department of Science and Technology, Govt of India, for financial assistance.

January 3, 2003

A. MADHUSUDHAN REDDY

S. SUNITHA

B. RAVI PRASAD RAO

Conservation Ecology Division,

Department of Botany,

Sri Krishnadevaraya University,

Anantapur 515 003,

Andhra Pradesh, India.

REFERENCES

- BOR, N.L. (1960): The Grasses of Burma, Ceylon, India and Pakistan. Pergamon Press, London. 767 pp.
 COPE, T.A. (1982): Poaceae. *In*: Flora of Pakistan (Eds.: E. Nair and S.I. Ali). No. 143. Islamabad. 678 pp.
 KARTHIKEYAN, S., S.K. JAIN, M.P. NAYAR & M. SANJAPPA (1989): Florae Indicae Enumeratio: Monocotyledonae. Fl. Ind. Ser. 4. Botanical Survey of India, Calcutta. pp 435.
 MOULIK, S. (1997): The Grasses and Bamboos of India, Vol. I. Scientific Publishers, Jodhpur. 359 pp.
 SHUKLA, U. (1996): Grasses of North-Eastern India. Scientific Publishers, Jodhpur. 404 pp.
 SREEKUMAR, P.V. & V.J. NAIR (1991): Flora of Kerala - Grasses. Botanical Survey of India, Calcutta. 470 pp.

31. A NOTE ON THE COLLECTION OF *PTERIS PUBERULA* CHING (PTERIDACEAE: PTERIDOPHYTA) IN THE NORTH-WESTERN HIMALAYA FROM KUMAON HILLS

The occurrence of *Pteris puberula* Ching (= *Pteris nepalensis* H. Ito) of Family Pteridaceae was reported for the first time by Punetha (1985) from Lohaghat and Champawat in District Champawat as a commonly growing species. Later, Pangtey and Punetha (1987) included this species, while enumerating the pteridophytic flora of Kumaon Himalaya based on the report of Punetha (1985), in the north-western Himalaya. But these specimens were later re-identified by Fraser-Jenkins (*pers. comm.*) as a large sized *Pteris subquinata* Wall. ex Agardh and subsequently Punetha and Kholia (1989) accepted that this species does not occur in Kumaon Himalaya and that the earlier report of Punetha (1985) was certainly based on misidentification. Unfortunately, Pande (1990), Pande and Pande (2002), and Dixit and Kumar (2002) still catalogued this species from Pithoragarh and Champawat in Kumaon Himalaya based on the wrong report of Punetha (1985).

Khullar (1994) in his AN ILLUSTRATED FERN FLORA OF THE WEST HIMALAYA has clearly excluded this species based on Punetha and Kholia (1989) and suggested that this species does not occur in Kumaon in the west Himalaya.

Fraser-Jenkins (1997) has clearly pointed out that he has not seen *P. puberula* Ching as far west as near the top of

Sheopuri mountain, north of Kathmandu, Bagwati zone, central Nepal and that it is abundant at higher altitudes in eastern Nepal and around Darjeeling and also Lachung in the north of Sikkim.

While compiling the fern flora of Uttaranchal, it was found that some specimens were tentatively identified as *P. puberula* Ching by Fraser-Jenkins (1994) in our Herbarium, but remained unattended for a long time thinking that they are the larger specimens of *P. subquinata* Wall. ex Agardh. However, the specimens match very well with the photograph and description given by Ito (1966) in Hara. Realising its close similarity with *P. puberula* (= *P. nepalensis*), the author sent two specimens to C.R. Fraser-Jenkins, then in Kathmandu, Nepal in 2000 for his expert comments and he identified and confirmed these specimens to be *P. puberula* Ching with a remark that this is a genuine collection of *P. puberula* Ching from Kumaon in north-western Himalaya and that all previous records were erroneous. Thus, the collection of this species in Kumaon Himalaya is certainly an addition to the fern flora of Kumaon Himalaya in particular and the north-western Himalaya in general and extends its distributional range further west to Kumaon from the central Nepal. The author is of the view that this species may be quite frequently observed,